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(54) Title: GENETICALLY ENGINEERED ORAL COMMENSAL ORGANISMS AS VACCINES

## (57) Abstract

In accordance with the present invention, there are provided compositions comprising a live oral commensal bacteria, such as a streptococci, that has been genetically modified to express immunogenic fragment(s) of one or more pathogens, such as a mucosal pathogen like B. pertussis, which causes the disease known as whooping cough. The modified organisms are administered orally and/or intranasally. Once an infection of the modified commensal bacteria is established in the oral cavity of the host, the modified organism will continue to express the immunogenic pathogenic fragment(s) so long as the infection persists. Since such oral commensal bacteria generally persist in the oral cavity of humans and other susceptible vertebrates throughout life, the need for booster immunizations is minimized or reduced, providing the host protection against the pathogen throughout life. As native oral commensal organisms are spread from mother to infant as well as between adults by daily contact, invention compositions and methods will be particularly useful for providing immunity in undeveloped countries where conventional vaccines are too expensive to be effectively used.